

ABSTRACT OF THE DISCLOSURE

A method is disclosed for operating a synchronous space division multiple access, code division multiple access communications system, as is a system that operates in accordance with the method. The method operates, within a coverage area of a base station (BS), to assign the same spreading code to a plurality of subscriber stations (SSs) and to transmitting signals to, and receive signals from, the SSs using an antenna array having M elements, where $M > 1$ and where the M elements are spaced apart by more than one-half wavelength from one another. The spacing is a function of a size of an aperture of the antenna array which is a function of a signal bandwidth to carrier frequency ratio. The antenna array aperture is preferably less than $k = p/360 * f_c/B$ wavelengths, where p is a maximum acceptable phase variation over the signal bandwidth, where f_c is the carrier frequency and where B is the signal bandwidth. The step of conducting communications includes steps of despreading a plurality of received signals; and beamforming the plurality of despread received signals. In a preferred embodiment individual ones of P orthogonal spreading codes are reused αM times within the coverage area, where $1/M < \alpha \leq 1$.